Monitoring and GIS Mapping of San Diego's Watersheds

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Introduction

Watershed Monitoring Program Objectives

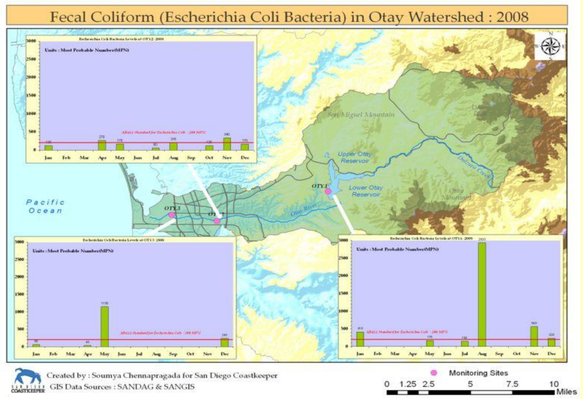
1. Assess the health of San Diego County waterways through monthly water sampling events and comprehensive environmental data collection.
2. Foster citizen involvement in pollution abatement and source tracking.
3. Share water quality data widely with project partners and the public.
4. Provide interpreted data in an easy to understand, transparent way available on the web.
5. Empower the public to make informed decisions about personal water contact based on up-to-date information readily available.
6. Educate the public regarding water quality issues and daily activities that contribute to, or prevent water pollution.
7. Incorporate new strategies to address citizen polluting behaviors such as Community Based Social Marketing and Community Enhancement projects.

Methods and Results

Adam Taylor, San Diego Coastkeeper Lab Duties :

•Managing data from water monitoring events
•Organizing and analyzing data
•Testing water samples for bacteria, nitrates, and phosphates
•Coordinating volunteers

Water samples colleted from the field ready to be processed.



Above image: GIS map of Otay Watershed showing sites monitored and expressed data levels of E.Coli at those sites through 2008.

The image below shows the eleven main watersheds of San Diego county, ten of which are monitored by Coastkeeper.

Watersheds are basin shaped areas of land where water from rain or snow flows down from higher elevation to lower lands and into streams, rivers, estuaries, and eventually the ocean

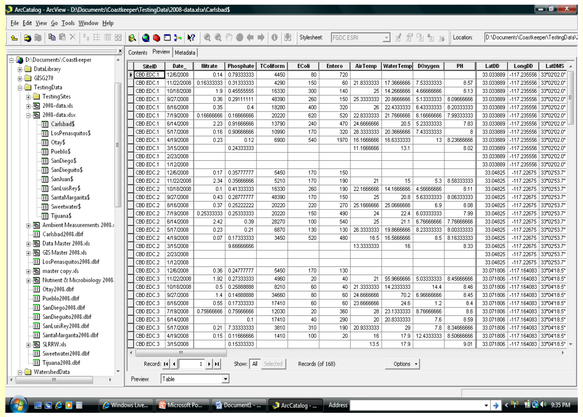
Doug Mengers, San Diego Coastkeeper GIS/Lab Duties :

•Set up GIS structure on Coastkeeper's servers
•Convert raw collection data to GIS format
•Create reference maps for each watershed
•Post the data and maps to the website

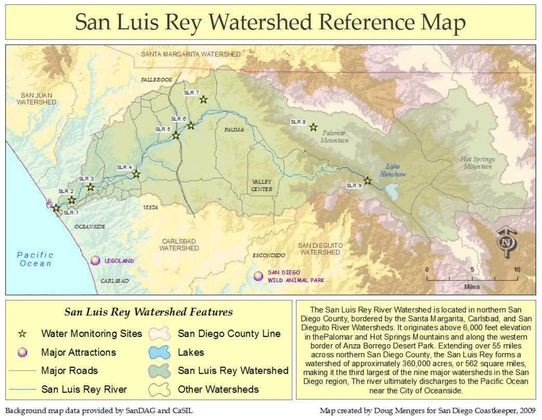
Doug getting into some GIS at Coastkeepers Lab

Water Monitoring steps:

•Water samples are collected in the field
•Data is organized and entered into computer
•Data is quality checked
•Final checked data is sent to GIS program for visual representation and mapping
•Visual models are put onto wiki @ www.sdwatersheds.org



Data from Carlsbad watershed converted for GIS formatting



GIS map representing San Luis Rey watershed and sites monitored

Conclusion

Adam Taylor

By working in a team oriented environment at San Diego Coastkeeper I was able to explore many new areas within my field of interest. Working side by side with teammates who had different tasks but were all focused by the same common goal of water quality gave me the opportunity to broaden my career options. I would like to thank the MESA program, San Diego Coastkeeper, and the National Science Foundation for this incredible opportunity.

Doug Mengers

During my internship with the San Diego Coastkeeper, I was able to work with real-world data and challenges in the Geographic Information Systems field. This experience has been invaluable in expanding my knowledge of GIS and has increased my value to current and future employers. I would like to thank the MESA program, San Diego Coastkeeper, and the National Science Foundation for this rewarding opportunity.